

SCALES LAKE  
Warrick County  
2006 Fish Management Report

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## EXECUTIVE SUMMARY

- A general lake survey was conducted at Scales Lake on May 14 and 15 and June 28, 2006. An aquatic vegetation survey was done on July 27.
- Dissolved oxygen was adequate for fish survival to a depth of 12 ft. The lake was clear as indicated by a Secchi disk reading of 12 ft. The conductivity was 482  $\mu$ S.
- A total of 346 fish was sampled that weighed 84 lbs. Bluegill dominated the collection by number (44%) followed by redear sunfish (27%), and largemouth bass (17%). Redear ranked first by weight (40%) followed by bass (25%), bluegill (12%), and channel catfish (10%).
- A total of 151 bluegill was sampled that weighed 10 lbs and ranged in length from 1.5 to 8.0 in. Bluegill catch rates were 198.7/electrofishing h, 1.0/gill net lift, and none were caught in trap nets. Fifty-eight largemouth bass were sampled that weighed 21 lbs. They ranged in length from 4.9 to 14.0 in. Only eight bass over 12.0 in were sampled. The electrofishing catch rate was 76.0/h compared to 182.7/h in 2001.
- It appears that the largemouth bass slot limit may need to be changed back to a minimum length limit due to the decreased bass electrofishing catch rate and declines in bluegill growth and population indices.
- It is recommended that a supplemental electrofishing survey be conducted in late May or early June 2007.
- It is recommended that the aquatic vegetation control areas be expanded to include more of the south shore.

## INTRODUCTION

Scales Lake is a 53-acre impoundment located in Warrick County in the City of Boonville. The impoundment is part of Scales Lake Park, operated by the Warrick County Parks and Recreation Department. The lake was formed by constructing a dam and flooding a strip mined area. Consequently, the lake resembles many of the pre-1970 strip pits in southwest Indiana. Park facilities include a petting zoo, swimming beach, boat rental, camping, and picnic areas. A handicap accessible boat ramp and fishing pier were constructed with Indiana Waters grant funding. Bank fishing accessibility is good around half the lake. Daily and annual entrance permits cost \$2.00 and \$18.00, while daily and annual boat launch permits cost \$2.00 and \$20.00. Both entrance and launch permits are required for boat launching. Entrance fees are reduced for residents of Warrick County. More information about the park, including maps and driving directions, can be obtained through the Internet at [www.scaleslakepark.com](http://www.scaleslakepark.com).

Many fish surveys have been conducted since 1963 and an angler creel survey was conducted in 2001. The 2001 angler survey documented heavy fishing pressure and exceptional fishing for bluegill, redear sunfish, and black crappie. It was assumed that the 12 to 15 in bass slot length limit, which was enacted in 1994, was not having a major impact on the bass population due to the steady electrofishing catch rates and low bass harvest. Beginning in 1994, Scales Lake has been supplementally stocked with 1,056 channel catfish biennially.

## METHODS

A general fish management survey was conducted on May 14 and 15, and June 28, 2006. The survey objectives were to evaluate panfish recruitment, bass growth, and impacts of the bass slot limit regulation. As part of the general survey an aquatic vegetation survey was conducted on July 27 according to Pearson's (2004) methods and some water chemistry parameters were measured on May 14. All netting was conducted on May 14 and 15 and night electrofishing was attempted, but the aquatic vegetation was too dense to run the electrofishing boat along the shoreline. All fish sampled by electrofishing on May 14 were excluded from the data set. On June 28, 0.75 h of pulsed DC night electrofishing with two dippers was conducted. Netting effort consisted of four overnight trap net lifts and two overnight gill net lifts. All sampling was done according to the standard sampling guidelines (Shipman 2001). Fish were measured to the

nearest 0.1 in TL and weights were estimated from the Fish Management District 7 averages. Scale samples were taken from a subsample of sport fish for age and growth analysis. Proportional stock density and RSD indices were used to evaluate the fish populations (Anderson and Neuman 1996). The bluegill fishing potential index (BGFP) was used to evaluate the quality of the bluegill fishing (Ball and Tousignant 1996).

## RESULTS

Dissolved oxygen was adequate for fish survival to a depth of 12 ft. The lake was clear as indicated by a Secchi disk reading of 12 ft. The conductivity was 482  $\mu$ S which was lower than the 2001 reading of 674  $\mu$ S. The high conductivity is typical of southwest Indiana strip pits.

Chara, coontail, curlyleaf pondweed, sago pondweed, and naiad spp. were the dominant plant species. The mean rake score was 1.65 and plants were found in 25 of the 39 littoral sites. In May, curlyleaf pondweed was at nuisance levels as it covered approximately 80% of the lake. Aquatic vegetation is treated with herbicides every May by a professional herbicide applicator. The treatment areas are designated by the District 7 Fisheries Biologist.

A total of 346 fish, representing 8 species, was sampled that weighed 84 lbs. Bluegill dominated the collection by number (44%) followed by redear sunfish (27%), and largemouth bass (17%). Redear ranked first by weight (40%) followed by bass (25%), bluegill (12%), and channel catfish (10%). Other fish species collected were warmouth, yellow bullhead, black crappie, and brown bullhead. These species combined for 12% of the collection by number and 14% by weight.

A total of 151 bluegill was sampled that weighed 10 lbs and ranged in length from 1.5 to 8.0 in. Bluegill catch rates were 198.7/electrofishing h, 1.0/gill net lift, and none were caught in trap nets. Electrofishing catch rates in 1999 and 2001 were 159.0/h and 216.0/h. Bluegill growth declined from 2001 levels as age-3 and age-4 bluegill averaged 4.2 and 6.8 in versus 6.9 and 8.3 in. Growth at all ages was below the lower range of the 2001 mean TL 95% CI. The PSD, RSD7, RSD8, and BGFP indices scores were 11, 9, 0, and 11. These scores have substantially decreased from the 2001 indices scores of 35, 14, 7, and 28.

A total of 94 redear sunfish was collected that weighed 34 lbs. They ranged in length from 4.0 to 10.8 in and 44% were longer than 8.0 in. Redear catch rates were 50.7/electrofishing

h, 14.0/trap net lift, and none were caught in gill nets. Catch rates in 2001 were 26.7/electrofishing h, 94.5/trap net lift, and 1.8/gill net lift. Redear sunfish growth was average compared to the district averages, but poor for Scales Lake. An age-3 and age-4 redear averaged 7.7 and 8.1 in compared to 2001 growth of 8.4 and 9.7 in. Growth at all ages was below the lower range of the 2001 mean TL 95% CI.

Fifty-eight largemouth bass were sampled that weighed 21 lbs. They ranged in length from 4.9 to 14.0 in. Only eight bass over 12.0 in were sampled. The electrofishing catch rate was 76.0/h compared to 182.7/h in 2001. Bass growth was average and similar to 2001. The mean TL for age-3 and age-4 bass was 11.2 and 13.0 in. The bass PSD could only be reliably categorized to be less than 40 due to the few bass sampled. The PSD in 2001 was 26.

Twenty-nine warmouth were sampled that weighed 6 lbs. They ranged in length from 3.1 to 7.8 in. Warmouth accounted for 8% of the collection by number and 7% by weight.

## DISCUSSION

It appears that the largemouth bass slot limit may need to be changed back to a minimum length limit due to the decreased bass electrofishing catch rate and declining bluegill growth and population indices. The bass electrofishing catch rate decreased 140% from 2001, and bass growth did not improve. Normally, bass growth improves as bass numbers are reduced due to lower intraspecific competition. The bluegill electrofishing catch was similar to previous survey results, but bluegill growth declined from 2001 levels. Also, the decreased PSD and RSD's signify a bluegill population dominated by bluegill less than 6.0 in long. Another indicator that the quality of the bluegill fishery has substantially declined is the BGFP classification decreasing from an excellent bluegill rating to a marginal one.

Scales Lake has traditionally provided excellent bluegill and redear sunfish fishing and reinstating a largemouth bass minimum length limit will help ensure good fishing. A minimum length limit will increase bass numbers, hence increasing predation on bluegill which will improve bluegill growth. It is recommended that a supplemental survey be conducted in 2007 to further establish if the slot limit needs to be removed. The supplemental survey will be an electrofishing survey conducted in late May or early June depending on aquatic vegetation abundance.

Aquatic vegetation is becoming more of a nuisance at Scales Lake by negatively affecting angler access. The aquatic vegetation treatment area should be expanded to include more of the south shore to improve angler access (Figure). The proper management of aquatic vegetation at Scales Lake is one of the major factors that helps maintain the lake's good fishing.

#### RECOMMENDATIONS

- Conduct a supplemental electrofishing survey in late May or early June 2007.
- Expand the aquatic vegetation control area to include more of the south shore.

#### LITERATURE CITED

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Figure. Scales Lake aquatic vegetation treatment areas are indicated in black.

# **APPENDIX**

Fish Management Survey Data